Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A system for diagnosing the possibility of disease in one of a first body part and a second substantially similar body part by impedance measurements, the system comprising:

a first body part module for injecting a first current into the first body part and for receiving a corresponding first voltage signal;

a second body part module for injecting a second current into the second body part and for receiving a corresponding second voltage signal;

a correction module for obtaining a first correction factor for the first body part and a second correction factor for the second body part, the first and second correction factors accounting for impedances inherent in non-body part sources, the correction module including a magnitude correction module for calculating first and second [[a]] magnitude correction factors, and a phase correction module for calculating first and second [[a]] phase correction factors, where the first correction factor is composed of the first magnitude correction factor and the first phase correction factor, and where the second correction factor is composed of the second magnitude correction factor and the second phase correction factor; and

an impedance module for calculating a first impedance from the first current, the first voltage signal and the first correction factor, and for calculating a second impedance from the second current, the second voltage signal and the second correction factor,

wherein the first and second impedances are used to diagnose the possibility of disease.

Claim 2 (currently amended): The system of claim 1, wherein the non-body part sources that give rise to inherent impedances include skin covering the first and second body parts and ~~parts of the~~ system components.

Claim 3 (canceled).

Claim 4 (currently amended): The system of claim 1, wherein the correction module includes a magnitude correction table to calculate the first and second magnitude correction factors, the magnitude correction table containing calibration impedance magnitude ($|Z_{cal}|$) data and associated magnitude correction factor ($C_{mag}(|Z_{cal}|)$) data.

Claim 5 (original): The system of claim 4, further comprising a calibration apparatus to form the magnitude correction table.

Claim 6 (original): The system of claim 5, wherein the calibration apparatus includes an electrical model of the first body part, a variable interface resistance and the impedance module.

Claim 7 (currently amended): The system of claim 6, wherein the impedance module includes a bipolar unit for calculating a bipolar impedance, Z_{BP}, from a bipolar voltage measurement made by the first body part module on the first body part, a [[the]] magnitude of the bipolar impedance used by the correction module to obtain the first correction factor.

Claim 8 (currently amended): The system of claim 7, wherein the correction module uses the magnitude correction table and the magnitude of the bipolar impedance to obtain the first magnitude correction factor, which is given by $C_{mag}(|Z_{BP}|)$.

Claim 9 (original): The system of claim 8, wherein an uncorrected first impedance, Z^{raw}, is calculated by the impedance module from the first current and the first voltage signal.

Claim 10 (currently amended): The system of claim 9, wherein a [[the]] magnitude of the first impedance, Z, is calculated by the impedance module according to

$$|Z| = C_{\text{mag}}(|Z_{\text{BP}}|) \times |Z^{\text{raw}}|.$$

Claim 11 (currently amended): The system of claim 1, wherein the correction module includes a phase correction table to calculate the first and second phase correction factors, the phase correction table containing calibration impedance magnitude ($|Z_{\text{cal}}|$) data and associated phase correction factor ($C_{\text{ph}}(|Z_{\text{cal}}|)$) data.

Claim 12 (original): The system of claim 11, further comprising a calibration apparatus to form the phase correction table.

Claim 13 (original): The system of claim 12, wherein the calibration apparatus includes an electrical model of the first body part, a variable interface resistance and the impedance module.

Claim 14 (currently amended): The system of claim 13, wherein the impedance module includes a bipolar unit for calculating a bipolar impedance, Z_{BP}, from a bipolar voltage measurement made by the first body part module on the first body part, a [[the]] magnitude of the bipolar impedance used by the correction module to obtain the first correction factor.

Claim 15 (currently amended): The system of claim 14, wherein the correction module uses [[the]] information from the phase correction table and the magnitude of the bipolar impedance to obtain the first phase correction factor $C_{\text{ph}}(|Z_{\text{BP}}|)$.

Claim 16 (original): The system of claim 15, wherein an uncorrected first impedance, Z^{unc}, is calculated by the impedance module from the first current and the first voltage signal.

Claim 17 (currently amended): The system of claim 16, wherein a [[the]] phase of the first impedance, Z, is calculated by the impedance module according to

$$\arg(Z) = C_{\arg}(Z_{\text{BP}}) \times \arg(Z^{\text{unc}}).$$

Claim 18 (currently amended): A method for diagnosing the possibility of disease in one of a first body part and a second substantially similar body part by impedance measurements, the method comprising:

injecting a first current into the first body part;

receiving a corresponding first voltage signal;

injecting a second current into the second body part;

receiving a corresponding second voltage signal;

obtaining a first correction factor for the first body part and a second correction factor for the second body part, the first and second correction factors accounting for impedances inherent in non-body part sources, the step of obtaining including calculating first and second [[a]] magnitude correction factors, and calculating first and second [[a]] phase correction factors, where the first correction factor is composed of the first magnitude correction factor and the first phase correction factor, and where the second correction factor is composed of the second magnitude correction factor and the second phase correction factor;

calculating a first impedance from the first current, the first voltage signal and the first correction factor with an impedance module; and

calculating a second impedance from the second current, the second voltage signal and the second correction factor with the impedance module,

wherein the first and second impedances are used to diagnose the possibility of disease.

Claim 19 (currently amended): The method of claim 18, wherein the non-body part sources that give rise to inherent impedances include skin covering the first and second body parts and ~~parts of the~~ system components.

Claim 20 (canceled).

Claim 21 (currently amended): The method of claim 19, wherein the step of calculating first and second [[a]] magnitude correction factors includes using a magnitude correction

table, the magnitude correction table containing calibration impedance magnitude ($|Z_{cal}|$) data and associated magnitude correction factor ($C_{mag}(|Z_{cal}|)$) data.

Claim 22 (original): The method of claim 21, further comprising forming the magnitude correction table with a calibration apparatus that includes an electrical model of the first body part, a variable interface resistance and the impedance module.

Claim 23 (currently amended): The method of claim 22, further comprising:

performing a bipolar voltage measurement on the first body part; and

calculating a bipolar impedance, Z_{BP}, from the bipolar voltage, the magnitude of the bipolar impedance used to obtain the first correction factor.

Claim 24 (currently amended): The method of claim 23, wherein the magnitude correction table and a [[the]] magnitude of the bipolar impedance are used to obtain the first magnitude correction factor, which is given by $C_{mag}(|Z_{BP}|)$.

Claim 25 (original): The method of claim 24, further comprising calculating an uncorrected first impedance, Z^{raw}, from the first current and the first voltage signal.

Claim 26 (currently amended): The method of claim 25, wherein a [[the]] magnitude of the first impedance, Z, is given by

$$|Z| = C_{mag}(|Z_{BP}|) \times |Z^{raw}|.$$

Claim 27 (currently amended): The method of claim 18 [[20]], wherein the step of calculating the first and second [[a]] phase correction factors includes using a phase correction table to calculate the first and second phase correction factors, the phase correction table containing calibration impedance magnitude ($|Z_{cal}|$) data and associated phase correction factor ($C_{ph}(|Z_{cal}|)$) data.

Claim 28 (original): The method of claim 27, further comprising forming the phase correction table with a calibration apparatus that includes an electrical model of the first body part, a variable interface resistance and the impedance module.

Claim 29 (currently amended): The method of claim 28, further comprising:

performing a bipolar voltage measurement on the first body part; and

calculating a bipolar impedance, Z_{BP}, from the bipolar voltage, a [[the]] magnitude of the bipolar impedance used to obtain the first correction factor.

Claim 30 (currently amended): The method of claim 29, wherein the phase correction table and the magnitude of the bipolar impedance are used to obtain the first phase correction factor, which is given by $C_{ph}(|Z_{BP}|)$.

Claim 31 (original): The method of claim 30, further comprising calculating an uncorrected first impedance, Z^{raw}, from the first current and the first voltage signal.

Claim 32 (currently amended): The method of claim 31, wherein a [[the]] phase of the first impedance, Z, is given by

$$\arg(Z) = C_{arg}(Z_{BP}) \times \arg(Z^{unc}).$$